

## ABSTRACT

The present invention relates to a cup handling subsystem for an automated clinical chemistry analyzer system which includes a nestable sample cup for holding sample mixtures, a cup dispenser mechanism for holding and dispensing a supply of the cups into a sample shuttle 5 for transporting them, and an incubator for controlling the temperature of the cup and its contents. In one embodiment, the cups include a conical lower portion and a cylindrical upper portion having a top flange, a bottom flange and a groove formed therebetween. An apparatus is provided for holding and dispensing a plurality of such cups including a supply tube for holding the cups in a stack wherein the stack has a bottom-most cup and a next-bottom-most cup located 10 above the bottom-most cup. The apparatus also includes an escapement located at a lower end of the supply tube which includes a disk having an aperture formed therein, a first leaf attached to a top side of the disk and a second leaf attached to a bottom side of the disk. The disk is movable between a first position in which the second leaf engages the bottom flange of the bottom-most cup and a second position in which the first leaf is inserted into the groove of the next-bottom- 15 most cup and engages the top flange of the next-bottom-most cup and in which the second leaf no longer engages the bottom flange of the bottom-most cup. In the second position, the bottom-most cup is free to fall through the aperture formed in the disk.